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CLAIMS

1. A nanoparticle, which particle encapsulates a fluorescent material, characterised in that the nanoparticle comprises a fluorescent dye based on entrapment of a protein-dye conjugate or a DNA-dye conjugate within the nanoparticle.
2. A nanoparticle according to claim 1 characterised in that the nanoparticle is derived from a sol gel.
- 10 3. A nanoparticle according to claim 1 characterised in that the nanoparticle is intrinsically fluorescent.
4. A nanoparticle according to claim 3 characterised in that the nanoparticle is derived from cadmium sulphide and cadmium selenide optionally doped with rare earth atoms.
- 15 5. A nanoparticle according to claim 4 characterised in that the rare earth atom is a europium III salt.
- 20 6. A nanoparticle according to claim 1 characterised in that the nanoparticle is substantially spherical and has a diameter of from 30 to 500 nm.
7. A nanoparticle according to claim 1 characterised in that the dye is selected from Texas Red-labelled gelatin, porcine thyroglobulin, and fluorescein-labelled bovine serum albumin or gelatin.
- 25 8. A nanoparticle according to claim 1 characterised in that the surfaces of the particles are modified to enable them to be provided with a surface coating.
- 30 9. A nanoparticle according to claim 8 characterised in that the particles are capable of being modified by passive adsorption or via covalent attachment to coat their surfaces with hydrophobic molecules.
- 35 10. A nanoparticle according to claim 9 characterised in that the hydrophobic molecules are selected from phosphatidylcholine and phosphatidylethanolamine.

11. A nanoparticle according to claim 2 characterised in that the Sol gel-derived nanoparticles comprise a Texas Red-porcine thyroglobulin conjugate embedded within them.
- 5 12. A nanoparticle according to claim 1 characterised in that the particles comprise a high fluorescence intensity.
13. A nanoparticle according to claim 1 characterised in that the surface coating is lipophilic.
- 10 14. A nanoparticle according to claim 1 characterised in that the particle is adapted to bind to a sebum-derived component.
- 15 15. A nanoparticle according to claim 14 characterised in that the sebum derived component is selected from the group comprising waxes, cholesterol and squalene.
16. A nanoparticle according to claim 13 characterised in that the lipophilic coating is selected from phosphatidylcholine and phosphatidylethanolamine.
- 20 17. A nanoparticle according to claim 8 characterised in that the coating is passively adsorbed directly onto a sol gel particle.
18. A nanoparticle according to claim 1 characterised in that the particles are formed from TEMOS (tetramethyloxysilane).
- 25 19. A nanoparticle according to claim 18 characterised in that the particles comprise aminopropylmethoxysilane-derived sol gels.
- 20 20. A nanoparticle according to claim 19 characterised in that the preparation of the particles included a glutaraldehyde treatment.
- 30 21. A nanoparticle according to claim 20 characterised in that the glutaraldehyde treatment was followed by cyanoborohydride reduction.
- 35 22. A nanoparticle according to claim 21 characterised in that the cyanoborohydride reduction was followed by an ethanolamine wash.

23. A nanoparticle according to claim 1 characterised in that the particles are uncoated nanoparticles and carry either a net negative or a net positive charge.
- 5 24. A nanoparticle according to claim 1 characterised in that the particles are provided with a hydrophilic coating.
25. A nanoparticle according to claim 24 characterised in that the coating carries either a net negative or a net positive charge.
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26. A nanoparticle according to claim 24 characterised in that the hydrophilic coating comprises polylysine.
- 15 27. A method of detecting prints (e.g. fingerprints) which comprises the use of a nanoparticle according to claim 1.
28. A method according to claim 27 which comprises determining details of fingerprint substructures.
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29. A method according to claim 1 characterised in that the scanning was performed at an excitation wavelength of 595 nm
30. A nanoparticle or a method substantially as described with reference to the
25 accompanying examples.